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FOR THE REMEDY OF OTHERWISE INCURABLE DISEASES

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EXTIRPATION OF THE FUNCTIONALLY ACTIVE OVARIES FOR THE REMEDY OF OTHERWISE INCURABLE DISEASES.

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SOME four years ago I brought to the notice of the Medical profession, through the columns of the "Atlanta Medical and Surgical Journal," a new surgical operation, and related a case in which I had removed the ovaries, still in a state of functional activity, from a young lady who was suffering serious detriment to her health and peril to her life by reason of an excessive menstrual molimen which was wholly unrelieved by the usual menstrual flux. In the intervening time other similar operations have been performed. In scarce any two cases of the short series have the urgent symptoms complained of been the same or strikingly analogous, and yet all have had certain features in common, which may very properly group them into a single class, inasmuch as they have all been characterized by a vicious or abnormal ovulation upon the one hand, and have all obstinately resisted the more usual and well accepted methods of treatment upon the other hand.

I am very sensible of the fact that the number of these operations is as yet entirely too small to establish any new principle, or warrant the drawing of any definite conclusions from the facts thus far ascertained. My own inclination would be not to intrude either my work or myself upon the notice of my brethren until I might be able, at a future time, to offer more enlarged and more mature results. Two considerations, however, have prevailed with me to make to the Society this meagre report, namely: an expressed desire

of certain members of the Society to have early possession of the facts thus far ascertained, and the consciousness that my obscure and circumscribed field of labor must necessarily render the accumulation of additional facts very slow and difficult in the future, as it has been in the past.

In doing these operations I have sought to effect a cure of the varied maladies complained of, by the removal, in certain instances, of an ovary viciously or abnormally performing its functions, and more frequently by the removal of both ovaries, to put an end to ovulation entirely, and thus to determine the menopause or change of life; whereby I have hoped, through the intervention of the great nervous revolution which ordinarily accompanies the climacteric, to uproot and remove serious sexual disorders and reëstablish the general health. I have done ten operations in all; of which three fall under the former and seven under the latter head.

CASE I. Both ovaries removed. Single; aged 30; had been an invalid for sixteen years. She suffered with amenorrhea, having had her menses but twice previous to my care of her. The menstrual molimen was excessive, accompanied by headache, suffused countenance and, usually, convulsions, which were epileptiform in character and left the patient in a semi-comatose state. During these attacks she had repeated pulmonary congestions, followed by protracted cough. There was slight tubercular deposit in the apex of the left lung. Ordinarily these attacks were relieved in a measure by vicarious hemorrhages, sometimes gastric, sometimes pulmonary, rarely nasal, most frequently rectal. But once was there any bloody discharge from the uterus, and this followed upon an intra-uterine treatment just upon the eve of one of her paroxysms. She had repeatedly had pelvic cellulitis resulting in abscess, and upon several occasions hematocele. She likewise suffered at times with acute articular rheumatism, such as I have repeatedly observed to accompany chronic uterine diseases, and which seemed to be developed by the uterine disease. Her periodical attacks recurred at intervals of five to seven or eight

weeks; were always more or less violent, and often seemed to threaten life.

The ovaries were removed by abdominal section, silk ligatures being used, the pedicles cut short and returned into the cavity. The operation was done just upon the eve of one of her paroxysms when she had already recognized the prodrome of the coming storm. Each ovary presented a recently ruptured Graafian vesicle, in one of which the blood had not yet coagulated, as if the ovum had but just escaped. The progress of the case was tardy; septicemia was encountered and successfully overcome by the peritoneal douche, after the method of Dr. Peaslee.

The results of this case have been marked and striking in several particulars. (1.) In the disappearance of the menstrual molimen, the cessation of the nervous phenomena, convulsions, etc.; exemption from cough, pelvic inflammations, abscesses, and hematoceles; in the rapid accumulation of flesh and strength, etc. (2.) In the occurrence of uterine hemorrhages — not simple metrostaxis, nor yet menstrual, but a true uterine hemorrhage, copious, protracted, and sometimes even exhausting. These hemorrhages appear at intervals varying from three to seven months, and continue from two to five weeks.

CASE II. One ovary removed. Married; aged 32; one child, five years old; no miscarriage. She had suffered much since the birth of her child with neuralgia of the left ovary, the organ was much enlarged, sensitive to the touch, and the pain unrelieved by treatment The ovary was removed by incision into Douglas's pouch and a ligature left upon the pedicle, the end hanging out of the vagina. The ovary was found to be greatly enlarged and in a state of cystic degeneration. The patient recovered without an untoward symptom; there was no surgical fever; the pulse did not go above 90 at any time.

Result. She experienced a gratifying relief from pain for a time, but it subsequently reappeared in the right ovary, which is now enlarging and becoming more and more a source of suffering. It is in contemplation to remove the

remaining ovary by a second operation. The menstruation has been regular up to last spring, when she missed two months and supposed herself pregnant. This, however, has proved an error, and the menses are now regular again.

CASE III. Both ovaries removed. Married ; aged 38 ; three children ; youngest nine years ; no miscarriage. She complained of neuralgic pains in the ovaries ; was the subject of long standing endometritis ; mind much impaired, threatening mania. Both ovaries were removed through the vaginal incision and the pedicles crushed by the ecraseur. Neither ligatures nor sutures were used. The recovery was uninterrupted ; the pulse did not rise above 100.

Result. The menopause full and complete without a symptom of molimen. Disappearance of the pelvic pain and striking improvement in the mental condition. She now does unaided the house-work of her family. It is a remarkable fact, in this case, that the uterus, which was of full size at the operation and continued so for a year afterwards, has in the past eighteen months undergone an extraordinary hyper-involution until it is now no larger than that of a child six years old.

CASE IV. One ovary removed. Married ; aged 24 ; no children ; no abortion. She had been for two years bedridden with intense ovarian neuralgia, from which she had no relief except in the continued use of morphia, of which large doses were required to render her at all comfortable. Each recurring menstruation but added to the intensity of her sufferings. The case was put into my hands through the kindness of Dr. Marion Sims, who, with Prof. Gross of Philadelphia, Prof. Sayre of New York, Prof. D. W. Yandell and Dr. Leachman of Louisville, and others, assisted at the operation. The incision was made in the posterior vaginal culde-sac and the ovary found to be imbedded in pelvic lymph. The identification of the ovary was confirmed by the practiced touch of Dr. Sims and proved beyond controversy by portions of the stroma brought out upon my finger nail and submitted to Drs. Gross and Sayre. It was found to be impracticable to isolate the gland entire and I contented my-

self with such disintegration as I could effect with my finger nail. The convalescence was slow and tedious, and much difficulty was encountered in breaking up the morphia habit which she had acquired.

Result. There has been a decided improvement in the general condition of the patient since the operation. The menstruation is regular, moderately painful, borne without morphia. She is able to be about the house in comfort and, excepting at her periods, she walks to church on Sunday. So satisfactory is the result to her that she now urgently pleads for the removal of the remaining ovary, but is advised to content herself for the present with the relief already obtained. The attending physician has recently reported this patient entirely recovered. See "Richmond and Louisville Medical Journal," October No., 1876.

CASE V. One ovary removed. Married; aged 35; no children; never pregnant. She suffered with dysmenorrhea, intense ovarian pain, and coccygodynia. She was wholly unable to sit on account of pain and when not standing or walking was forced to the recumbent position. The right ovary, which was very sensitive to pressure, was removed by vaginal incision, the pedicle being secured by ligature and the organ cut away with scissors. She got up without an untoward event.

Result. For some weeks after the operation there was a total subsidence of all pelvic discomfort with exception of the coccygodynia; pain however returned in the other ovary and it became the subject of a second operation.

CASE VI. Both ovaries removed. Married; aged 30; four children; youngest six years old; no abortions. She had suffered since last confinement with ovarian dysmenorrhea; she was quite hysterical and the mind so unbalanced as to excite grave apprehensions of confirmed insanity.

Operation. The ovaries were brought down with great ease through the vaginal incision, the pedicles tied with silk, the organs cut away with scissors and the ligatures brought out of the vagina. No suture was used in the vaginal wound. The case progressed favorably. Upon the eighth day I noted

"slowly and steadily improving, has but little pain, takes no more morphia daily than was her habit before the operation. There is no heat, perspiration normal, urine natural and easy, bowels moved freely by seidlitz, tongue clean, some appetite, vaginal wound discharges but a trifle and is well closed around the ligatures; her condition is satisfactory." On the morning of the ninth day all was going well; but at 2 P. M., rising upon her elbow to take a draught of water, she was suddenly seized with an excruciating pain in the lower abdomen and alarmed the house by her outcry. The pain was soothed with great difficulty by morphia and local applications of chloroform to the abdomen. I passed a gum catheter through the opening into Douglas's fossa; no fluid escaped, but on withdrawing the instrument I found in its eye a brownish yellow, granular, semi-fluid, which resembled the feces of diarrhea, but there was no fecal odor. I washed out the cul-de-sac with warm water at 4 and 9 P. M. and again the next morning. Little or nothing came. She continued to complain of extreme soreness, dull pain, and sense of burning heat, in the lower abdomen. The pulse rose to 120° at 4½ P. M., there was great heat and profuse sweating; at 10 P. M. the pulse was 140, with profuse sweating; at day-light the pulse barely perceptible at the wrist; there was general collapse, and death occurred at 2:45 P. M. of the tenth day.

Autopsy by Dr. James B. Baird: "Body appeared well nourished, no emaciation. Section of the abdominal walls revealed the existence of general peritonitis; coils of intestine were extensively adherent, though the adhesions were very recent and offered no resistance. The abdominal cavity contained about six ounces of turbid, gray colored sero-purulent fluid. The peritoneal surface was coated with freshly exuded lymph; the cecum and vermiform appendix were deeply congested. The fundus of the uterus was firmly attached to the rectum; evidently by adhesion of several days' standing. This adhesion extended laterally so that both broad ligaments were firmly bound down posteriorly, completely isolating Douglas's fossa from the remaining pelvic cavity. A perforation of the peritoneum, through which pus welled up

when the uterus was pressed upon, was observed in the right broad ligament. This perforation terminated in an abscess of about one fluid ounce capacity occupying the right side of Douglas's cul-de-sac, and surrounding the right ligatured stump. The parts adjoining the left stump were intensly inflamed but contained no pus. The ligatures had not been thrown off."

CASE VII. Both ovaries removed. Single; aged 25. Her menses appeared at 14; were regular but painful; severe dysmenorrhea from the first. She had been under the systematic care of more than twenty physicians, and was abandoned as a thoroughly incorrigible case. For the past four months she had been entirely bed-ridden, and a constant sufferer. She vomited her breakfast daily, but retained nourishment at dinner and tea. She required each day two or more grains of morphia, and every night sixty grains of chloral. Her nervous system was greatly shattered. The hypogastrium was tender; the uterus a little retroverted and tender upon pressure; the ovaries were enlarged, prolapsed, extremely sensitive, and the seat of constant neuralgic pain. Her general condition was fair for operation.

Both ovaries were cleanly removed, through the vaginal incision, by the ecraseur, and no ligature or suture was employed. The entire loss of blood did not exceed half an ounce. There was a little regurgitation of bile after the operation, but no vomiting. She required morphia subcutaneously in one grain doses, to quiet the nervous system, and a dram of chloral at night, without which there was no sleep. The progress was all that could be desired; she complained only of the gradual withdrawal of morphia and chloral. The maximum temperature reached 100.5° on the second, and again on the fifth day; the maximum pulse, 100 at the time of operation, and again on the seventh, eighth, and tenth days. On the eleventh day she walked across her room. The vaginal wound is quite healed, she feels herself perfectly well every way, there is no pain, and she bears pressure over the hypogastrium and iliac fossæ with impunity. On the twenty-seventh day she attended

the Industrial Exposition, remained for three hours, and walked freely everywhere. The attending physician subsequently reported this case entirely well. See Richmond and Louisville Medical Journal, October, 1876.

CASE VIII. Both ovaries removed. Married; age 28; one child, eleven years old. Her life had been one of continual suffering for eleven years, during the greater portion of which period she had been a bed-ridden invalid, with metritis, uterine hyperplasia, pelvic cellulitis, repeated pelvic abscesses, etc., etc. The abdominal muscles were tense and hard, the uterus was enlarged and indurated, very sensitive to the touch, fixed in the pelvis by extensive deposits of lymph in the surrounding tissues, with which the whole pelvis was much blocked up. Behind the uterus was a rounded, rather elastic body, the size of a large walnut, occupying the floor of Douglas's fossa. It was very sensitive on pressure, with a pain which she described as being acute and sickening; it was but slightly movable and there was no distinct fluctuation. The right ovary was *in situ*, enlarged, and very tender; the left ovary could not be found in its usual locality. The rounded body in Douglas's pouch was probably the degenerated left ovary, possibly a small hematocele or abscess.

Operation. The uterus was dragged down with difficulty in consequence of the pelvic deposits, and the posterior vaginal cul-de-sac incised with scissors, cutting into a small hematocele from which was scooped out about an ounce of grumous blood and the fossa laid open by incising the peritoneum. The finger now came in contact with the left ovary lying behind the uterus and above the hematocele. The ovary was enlarged to the dimensions of a hen's egg by cystic degeneration and firmly bound down by pelvic adhesions, in the rupture of which the cyst gave way and discharged a clear and rather viscid fluid. The tumor was brought as well as could be into the vagina and a ligature thrown around it as high as practicable. The right ovary was next examined and found still more deeply bedded in lymph, from which it was torn loose and drawn downwards to be ligated also. It likewise contained a small cyst about the size of a partridge

egg. So ragged were the tissues about these degenerate ovaries when torn loose from their adhesions, and so difficult was it to bring well into view their altered structure, that it could not be asserted that the entirety of either gland was included below its ligature. To diminish the doubt upon this point to the minimum the chain of the ecraseur in each case was carried as high into the cul-de-sac as could well be done and the chain tightened. After cleaning out the vagina there was considerable oozing which was promptly checked by passing small lumps of ice into the pouch of Douglas. The progress of this case was slow and difficult; there was much pelvic inflammation and several discharges of pelvic suppuration. The maximum temperatures were 102.5° on the second and seventeenth days; 103° on the eighteenth, and 106° on the twenty-fifth days respectively. The maximum pulse, 152 on the second; 128 on the fourth and seventeenth, and 144 on the twenty-fifth day.

Result. Has thus far been unsatisfactory as regards the objects for which the operation was undertaken; the painful menstruation has returned as before the operation, and her general state has been little if at all improved. It can only be said that she is rid of a cystic degeneration of both ovaries, when both were so bound down by adhesion as to offer little hope of life at a future day by the major operation.

Case IX. Second ovary removed. The patient (Case V.) being still unrelieved by the removal of one ovary it was deemed best to remove the other also. This was attempted, as usual with me now, by the vaginal incision. Upon opening the cul-de-sac, however, the remaining ovary, which had been left entirely free and movable at the former operation, was found to be firmly fixed and imbedded in lymph. It was torn loose with the finger in the same ragged condition as in Case VIII. and removed with the ecraseur. The patient recovered from the operation without trouble.

Result. She still suffers with pelvic pain and the menses continue regular and painful as before. She subsequently became the subject of excision of the coccyx at the hands of Dr. Edward Richardson of Louisville, and the history of the case will be given to the profession at a future day by him.

CASE X. Both ovaries removed. Single; aged 29. This patient had for many years been the subject of ovarian dysmenorrhea, her nervous system very much impaired and the mind somewhat so. My attention was called to the condition of the heart, as she had for years complained of occasional pain in the cardiac region and had, at times, a variable pulse, sometimes quick and at others abnormally slow. The sounds were found by myself and others to be quite normal, and her heart troubles were believed to be merely functional and sympathetic. Upon the day appointed for operation the pulse was found to be 60 per minute and weak, and it was deemed best to postpone the operation. On the following day the pulse was 100 and of good volume. She bore the ether well, the pulse was good throughout, and the operation went on with great ease and celerity; the ovaries being free and easily accessible. In bringing down one of the ovaries with the forceps, it was observed that a knuckle of small intestine was included in the grasp; this was returned immediately to the abdomen in a condition, as I think, wholly uninjured. The ovaries were removed by ecrasement, no ligature or suture being left. The oozing was slight and quickly ceased. She was put to bed, morphia administered and quiet enjoined. After dinner the patient complained of pain and reported that the nurse had taken the liberty to change her clothing and had hurt her very much in doing so. She passed a restless night and complained much of abdominal pain during the following day, which required the free use of morphia and warm fomentations. On the third day she was much easier, rested quietly in the forenoon and expressed herself hopefully better, though there was nausea and vomiting. She had a quarter grain of hypodermic morphia at 9 A. M., and a like quantity at 1 P. M. About noon the pulse began to give way decidedly in volume, became frequent and indistinct, and at 3 P. M. she was drowsy and hard to waken. She roused up at 5, was rational, talked freely and with good voice — "feels a great deal better." The heart's action was now very feeble, there was but slight pulsation in the femorals, none at all in the brachials. She soon

lapsed into a comatose state and died at 9½ P. M. Maximum temperature 104½° on the second day, and 107½° just before death; maximum pulse 128 on the second, and 160 on the third days. Autopsy refused.

In presenting briefly these cases to the Society it seems proper that I should append certain remarks and comments, notwithstanding I address so many who are adepts and savants in a science and art in which I am myself but a tyro.

The term Normal Ovariotomy, which I adopted for my original operation, has received at the hands of the profession almost universal condemnation. I confess myself still too obtuse to see clearly the appositeness of the general criticism which has been made upon my use of this term. Accepting the definition of Webster, I am not able to perceive any impropriety in distinguishing my operation from that of McDowell, by the use of the term normal as applied to the surgical proceeding itself, indicating thereby that it conforms to the *usual rule or standard* by which such operations are named. Webster defines the term normal, "according to an established norm, rule, or principle," and gives as synonyms, "regular; ordinary; analogical;" and remarks of its scientific use: "A thing is *normal*, or in its *normal* state, when strictly conformed to those principles of its constitution which mark its species. It is *abnormal* when it departs from those principles." Dunglison defines the term normal, "according to rule, perpendicular."

When I extirpate an ovary which, although it may be diseased, is easily and distinctly recognizable as an ovary, and which is regularly performing its functions as an ovary, I feel that I am doing ovariotomy "according to rule," ovariotomy which is "strictly conformed to those principles which mark its species" amongst surgical operations. I feel that I am doing the operation of ovariotomy normally, or, in other words, that I am doing Normal Ovariotomy. When either of my friends around me is engaged in the extirpation of a huge and unsightly tumor from the abdomen of a woman, a tumor in which I can recognize no form

or semblance of an ovary whatever, I feel that he is doing an operation which, in its designation, is not "according to rule;" an operation which, if ovariotomy at all, "departs from those principles of its constitution which mark its species." If, therefore, I recognize the latter operation as ovariotomy at all, which long established custom obliges me to do, I am forced to the conclusion that the term is abnormally used, that the proceeding is abnormal in its designation, that the operation is abnormal ovariotomy. In this sense, therefore, I have made use of the term, and have not, as some have supposed, been guilty of the absurdity of using the term normal as a synonym of the words natural or healthy. Since, however, the use of this term has met with no favor at the hands of the profession, and especially as it has but served to obscure rather than elucidate my meaning, I have cheerfully abandoned it, but in so doing I find myself at a loss at present to offer any suitable substitute.

What are the indications for this operation? I have endeavored to make myself understood in answer to this question in my published communications and reports, but I regret to say with little success. When I report a case of amenorrhea, it is commented upon as dysmenorrhea; when I assert that I *do not* operate for nymphomania, and that the removal of the ovaries does not annul the aphrodisiac propensity, it is boldly stated in criticism, that I *do* operate for nymphomania, and that the operation is a failure!

So great is the sanctity attached to the functions of the ovary and the testicle, in the professional as well as the popular mind, I hold that neither of these organs ought to be sacrificed to the surgeon's knife excepting for just cause and provocation, and after mature deliberation. I go further than this, I believe that these organs should alone be sacrificed for grave causes, and then only as a *dernier resort*, when the hitherto recognized resources of our art have been expended in vain. This much is due to the dignity of our calling; this much is due to humanity, to decency, and to public morality. I hold it to be the highest duty of our profession to preserve life. No physician has the moral

right to say to his patient, "It is better to die than to live." No part of the human body ought be invested with such dignity and value that it may not properly be sacrificed, if need be, for the welfare of the whole. In my opinion the removal of the functionally active ovaries is indicated *in the case of any grave disease which is either dangerous to life or destructive of health and happiness, which is incurable by other and less radical means, and which we may reasonably expect to remove by the arrest of ovulation or change of life.* I do not propose it for any case which is curable by other means. If asked, "do I operate for dysmenorrhea, for amenorrhea, for epilepsy, for mania?" I answer both *no* and *yes: no*, if the case be susceptible of other remedy; and *yes*, if the case be grave and otherwise without remedy. "Do I operate for nymphomania?" *No; never!* There is no reason to expect its cure by the arrest of ovulation.

Should one or both ovaries be removed? In three of these cases I have cited, but one ovary was taken. In each there was reason to believe that but one ovary was at fault. In neither of the three has the result been quite satisfactory. In one case the second ovary was subsequently removed in an imperfect and unsatisfactory manner in consequence of pelvic adhesions which had followed upon the former operation. In all of my cases it has seemed to me that more or less lymph was thrown out in the pelvis and the uterus more or less fixed by it. In Case III. the uterus was thus fixed for months, the deposits of lymph being quite abundant; but after the lapse of a year these deposits were apparently all gone and the mobility of the pelvic organs again became perfect. In Case IX. if a year or more had elapsed between the two operations, it is possible that the second ovary might then have been found free and its removal might have been accomplished cleanly and completely. In Case IV. the patient now complains of the remaining ovary, and pleads for its removal. The lymph deposits in the pelvis are quite extensive, and there is great doubt whether an operation would be satisfactory, hence the advice to the patient to content herself with the great relief she has already

obtained, until, perchance, her condition may at a future time be more favorable for a second operation. In Case II. the remaining ovary has become enlarged and painful, and will be the subject of a future operation. In all three cases the ovaries left were free, and could have been easily removed at the first operation; in all the patients were presumptively barren.

When we consider the grave character of the cases in which these operations are done; when we consider the difficulties which attend upon a second operation; when we consider the proneness of the ovary left behind to become the seat of disease; and when we take into account the advantages which we may expect to gain by the alterative results which attend upon the change of life, it may well be asked if the necessity which condemns the one ovary ought not to condemn the other also.

My first operation was made through the abdominal wall, all of the others through the vaginal cul-de-sac. The latter method presents, I think, several advantages; namely, 1st. The tissues cut through in the incision are thinner and less important than those of the abdominal wall. 2d. With judicious management air need not, and generally is not, admitted to the cavity of the abdomen, which is inevitable in the abdominal method. 3d. A peritonitis set up in the pelvic membrane is much less likely to become general and is much less grave in its consequences. 4th. The drainage of serum from the cul-de-sac is prompt and continuous. 5th. With care there is no interference with the mass of intestines. 6th. With properly educated touch the ovaries are reached with greater facility, and they are brought into view with less strain upon the broad ligaments. 7th. These combined advantages render the vaginal method less dangerous to the life of the patient.

For the abdominal method it may be claimed: 1st. That deficiency of touch may be supplemented by the eye; and 2d. That adhesions can be more easily dealt with and the ovary more cleanly removed when adherent.

To the first of these I would object that the abdominal

incision must be unduly long to enable one to *look* down into the pelvis in search of the ovaries, and they can be more readily brought into view in the vagina than upon the abdomen if they be not adherent. No one who has not already acquired the true *tactus eruditus* in gynecological practice should attempt this operation at all. The second claim for the abdominal method is better founded, but the same objection may be made to the length of the incision needed for free ocular inspection of the deep pelvis. The intestines must be pressed upwards by the deep introduction of several fingers, or the hand of an assistant, and the air freely admitted to the abdominal cavity. A larger experience in this particular operation will lead to greater discriminating power in searching out the buried ovaries, and the device of a suitable *scoop* directed by the educated finger, will probably enable us to remove the glandular tissue from its surroundings with a good degree of precision.

My method of operating is briefly this: I place the subject upon the left side, semi-prone; open the vagina and retract the perineum with a Sims' duckbill speculum having a broad rather short blade which is but slightly cupped. I have operated very well with a single blade of Storer's Boston speculum. The cervix is seized with stout volsella, the uterus drawn down under the pubic arch and the vaginal membrane and cellular tissue incised with scissors say one and a half inch in the median line of the posterior culde-sac, beginning immediately behind the uterus. If there is bleeding, which there usually is not, it is controlled by a jet of ice water, or by torsion, after which the peritoneum is incised. I now direct an assistant, with a hand upon the hypogastrium to press the abdominal organs downwards into the pelvis whilst I pass a finger up into Douglas's fossa, and, assisted by suitable forceps, bring down the ovary into the vagina and throw a ligature about its base. The other ovary having been similarly treated the organs are removed in turn by the ecraseur, allowing time sufficient in the crushing to give immunity from hemorrhage. The vagina is now syringed out and the patient put to bed. No liga-

tures or sutures should be left in the tissues; these I regard as both superfluous and detrimental. The patient is placed upon the back and the drainage is as perfect as could be desired.

The complications which may be encountered are: *adhesions*, which are sometimes extensive and intimate; indeed, the ovary may be so buried in lymph as to render its recognition difficult, as in Case IV., where even the erudite touch of Dr. Marion Sims did not determine the point fully, and it was only rendered clear by bringing away portions of the ovary itself. The adhesions are to be broken up by the finger, and when the organ cannot be freed *en masse* it is disintegrated as much as possible that it may slough out. In such cases a scoop is needed, similar to Simon's for uterine cancer, except that the edge of the spoon ought to be somewhat dulled that it may simply scrape out the glandular structure without any cutting action upon the more resistant tissues. Such a spoon could be guided by the finger and used effectively, and, if with proper care, without damage to important structures.

Prolapse of intestine has not occurred in any case, excepting in one instance when a knuckle was inadvertently pinched with the forceps and brought down with the ovary. The position of the patient causes the intestines to gravitate towards the umbilicus and they are not likely to give trouble unless forced downwards by unnecessary violence from the hand of the assistant.

Hemorrhage has never been troublesome in any case; generally the loss of blood has been very trifling. I attribute this exemption to the fact that I move the ecraseur chain very slowly and give ample time for hemostasis. In one instance where there was rather free venous oozing I stopped it quickly by pushing small lumps of ice into Douglas's fossa; these melted and the water drained away at once. The fact should not be overlooked that there might be troublesome hemorrhage in this operation, and such hemorrhage, on account of the impossibility of bringing the bleeding stump down into the vagina for the application of a ligature,

would find the operator in a position of great disadvantage. It is, of course, important that wise precautions should be taken in advance to avoid such an embarrassing accident; but should it occur what is to be done? I answer that the emergency would present an inviting field for display of the skill and readiness of the true surgeon who is master of the situation, full of resources and prompt in their application. My own thought upon the subject suggests a few expedients which may be worth the mentioning; namely, (1.) The lumps of ice in the pelvis as already alluded to. (2.) Digital compression, by passing the finger up behind the uterus, then outwards along the broad ligament until the bleeding point is reached, which is to be firmly compressed against the pelvic wall. (3.) A small compress of lint armed by a thread and impregnated with an iron or other styptic, may be carried up with forceps and interposed beneath the compressing finger. (4.) In a thin subject a globular compress placed upon the hypogastrium and forced downwards into the pelvis. (5.) A large Barnes' dilator passed into Douglas' space and inflated or distended with ice water. (6.) Compresses of cotton wool, each armed with a small cord and passed successively into the fossa until it is full, and two or more of the upper ones brought downwards a little to wedge the others laterally against the pelvic walls. (7.) The abdominal section. This I would regard with little favor. It should not have precedence of several or perhaps all, of the expedients named. To be effective the opening must be large enough to give free access to the pelvis so that the bleeding vessel may be secured; in my opinion this would complicate the operation more than either of the expedients I have suggested.

Of the *after treatment* little is to be said. In general it has been sufficiently simple. In two or three instances I have found it necessary to wash out the cavity with a double current catheter, in the others only syringing the vagina has been required. The vaginal wound begins to contract promptly after the operation; in twenty-four hours it is reduced to one half or one third the original length. In no

case has there been prolapse of intestine through the opening. Should such prolapse occur it seems to me that it would only be necessary to place the patient upon the side, return the intestine, and keep her in position for some hours.

The *mortality* in my hands has been two in the ten cases. This I regard as excessive and ought to be reduced at least one half upon a more extended line of cases. Two or three of the cases have been very unpromising ones, but it is not these who have died; some have required much and difficult manipulation to complete the operation, but none of these have died. In both of the fatal cases the pelvis was free from lymph, the ovaries removed with ease and facility. In one the stump was ligated with silk and the ligature brought out; in the other case the ecraseur was used and neither ligature nor suture left behind. The cause of death in one was clearly due to the accident of the opening of a small pelvic abscess into the peritoneal cavity from which the pus could find no outlet. I say accident, for, ordinarily nature is wonderfully conservative in her manner of getting rid of such collections of pus, sometimes by the vagina, sometimes by the rectum, sometimes by the bladder direct, and sometimes indirectly through the pelvis of the kidney. Rarely, very rarely does an abscess of the pelvis open into the peritoneum. Could the precise situation have been known in the sudden collapse of Case VI. a catheter might easily have been passed through the recent adhesions in the pelvis and the patient rescued by timely washing of the peritoneum. Up to the moment of bursting of the little abscess the condition of the patient was excellent and her recovery appeared to be well assured. In consequence of my failure to secure an autopsy in Case X. the cause of death cannot be stated. Through the imprudent interference of the nurse in changing the clothing and bedding, by which much pain was given, a sharp peritonitis ensued, but on the morning of the third day she seemed much and hopefully better. The pulse and temperature both indicated the improvement, as well as the general symptoms. In my opinion a weak heart was an important factor in the fatal issue.

Does this operation impair the aphrodisiac power of the subject? I answer there is no reason to suspect this in any of my cases, and in most of them it is definitely known that such is not the result. There is no loss of the womanly graces, but on the contrary the patient gains flesh and becomes even more attractive.

Lastly. *Will the removal of the ovaries determine the change of life?* The number of my cases is as yet entirely too small to throw any important light upon this question. In three of the operations cited but one ovary was removed; of the remaining seven two died; of the five, two (Cases VIII. and IX.) were so complicated with pelvic deposits of lymph, that it could not be asserted that the ovaries were cleanly removed; so that of the ten cases there are but three which can throw any light upon this subject. In one of the three, a lady of thirty-eight years who was perfectly regular at the time of the operation and had been for years, the change came at once and in all its completeness. There was no subsequent sign of the menses, nor was there any symptom of a menstrual molimen. In one case the menses ceased, but there was headache and backache for several months as the periods would recur. In one case there had been amenorrhea, with vicarious hemorrhages; the patient had had a bloody discharge from the uterus but three times between her puberty and thirty years of age. Following upon the operation a great and radical *change* came over her; the menstrual molimen, which had recurred eight or more time per year for fifteen years, ceased entirely with its concomitant nervous symptoms, convulsions, vicarious hemorrhages, and pelvic inflammations; and a uterine hemorrhage appeared, copious in quantity, protracted (two to five weeks) in its duration and very irregular (three to seven months) in its intervals of rest. In neither of the three cases can it be denied that a great and important "*change*" has been wrought in the subjects of the operation in *consequence* of the operation.

I had designed in this connection to consider somewhat in detail the probable influence of this operation upon the

generally accepted belief in the ovular theory of menstruation, but the time already consumed admonishes me not to trespass too far upon the forbearance of the Society, and I therefore reserve this branch of the subject for a future occasion. Whatever differences of opinion may exist in regard to the effect of double ovariotomy upon the function of menstruation the fact that the phenomena attendant upon the change of life are chiefly, if not entirely, due to the cessation of the functional activity of the ovaries will scarcely be denied. It is the great systemic revolution which occurs upon the final cessation of ovulation which I seek to effect, and that such result follows upon the complete extirpation of the ovaries is, I think, not to be called in question.